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APPENDIX 2: METHODOLOGY AND DATA

292. I relied on eight datasets to estimate the bout and identity class damages. Five of these datasets: (1) Zuffa bout compensation data; (2) Zuffa identity compensation data; (3) Zuffa contract data; (4) profit and loss data for Zuffa events; and (5) pre-acquisition Strikeforce event and compensation data—were derived from discovery documents. The other three datasets came from public sources: (6) the Fighter performance FightMetric data was purchased from the vendor directly; (7) Fighter rankings and the universe of Fighter-event matchups came from FightMatrix, and (8) the Sherdog website.

A. Datasets**1. Zuffa's Bout Compensation Data**

293. Bates numbered documents ZFL-0000003, ZFL-2603701, and ZFL-2764800 are spreadsheets containing Fighter-event pairs for all Zuffa produced events from February 2001 (UFC 30) to July 2017 (UFC 214: CORMIER vs JONES). These spreadsheets, when combined, form the complete universe of all Zuffa Fighter-event pairs over that time period. In addition to event and matchup information, the data also detail the show, win, LOA, PPV, and discretionary bonus payments made to each Fighter in each event (for example, Fight of the Night, Submission of the Night, and Knockout of the Night). Not counting non-events and events with no FightMetric data (discussed below), this dataset contains 8,505 Fighter-event pairs spanning 415 events and 1,503 Fighters. The Fighter-event pairs form the basis for my regression dataset.

2. Zuffa's Identity Compensation Data

294. Zuffa produced ZFL-2679053 and ZFL-2764813 at Plaintiffs' request, which are line-item accounting databases used by Zuffa to track payments, including payments to fighters; it is internally referred to as the "JD Edwards Database." I analyzed the payment data and flagged all payments relating to the identity class (sponsorship payments, video-game payments, merchandise royalties, and athlete outfitting policy payments). I supplement this data with ZFL-0000650, a "Merchandise Royalty Accrual database," which tracks royalty revenues accrued to specific Fighters for the sale of merchandise. If total royalty accruals are greater than merchandise payments in the JD Edwards Database during the Class Period, I use royalty revenues accrued from the Merchandise Royalty Accrual database instead for that Fighter's Merchandise payments during the Class Period.

3. Zuffa's Contract Data

295. Zuffa produced 44,526 separate Bates-numbered documents containing 51,020 individual Fighter-related documents. These documents included Promotional and Ancillary Rights Agreements (PARs), Bout Agreements, Letters, Amendments, Ratifications, Merchandise Agreements, other miscellaneous contracts, and some non-contract documents. Many of these documents were unsigned drafts. My team of researchers reviewed all 51,020 documents in this production. They cataloged the type of the document, and, in the case of PARs, additionally catalogued the contents of these contracts. For each PAR, my team recorded the date, Fighter

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name, promoter name, whether or not the document was signed by both parties, and various terms of the agreement. In addition to recording the term of the agreement in months and bouts, we also noted (where applicable) the terms of the Right to Match Period, the Exclusive Negotiation Period, the Champion's Clause, tolling periods, and any Option Periods. The researchers recorded how the language of the ancillary rights clauses, promotion clauses, exclusion clauses, Champion's clause, tolling clauses, right to match clauses, commercial identification clauses, and breach of suspension clauses changed over time. From this exercise, my team and I ultimately created a dataset containing the terms of all valid and complete PAR agreements signed by both Zuffa and the Fighter. This dataset contained 2,136 valid contracts in total, from May 2001 to November 2015.⁶⁴⁰

296. I match this contract data to the Fighter-event observations from the Zuffa compensation data by the Fighter's name and the date of the observation. I assign an active PAR to a Fighter-event observation if the observation occurs during the active contract period of the PAR. This active contract period is determined by taking the PAR signing date as the beginning date, and assigning it an end date determined by (1) the contract's term length in months (including the lead-up time from signing to a Fighter's first bout, as determined by empirical observation); and (2) the option period (if any) specified in the contract.

297. I make further allowances for early contract renewals and contract tolling. First, if a Fighter signs a new PAR while an old PAR is active, the new PAR takes precedence over the old. Second, as tolling data on contracts was not comprehensively available, I and my team take steps to match Fighter-event pairings that occur outside of any active contract. This happens in 123 observations before November 2015, the cut-off date for the contract data. If Fighter-event pairings occur with no matching PAR, and if that fight does not exceed the maximum number of bouts specified in the most recent contract, it is assumed that the PAR was extended via one of the PARs many tolling provisions. For 177 observations that occur after November 2015, we apply the Fighter's most recent contract to the observation.

298. Overall, I and my team are able to match 78 percent of Zuffa's Fighter-event pairs from the compensation data to a PAR from 2001-2015, when the contract data ends, and 71 percent overall. (Contracts signed in 2015 may still be active in 2017, but no new contracts are observed, leading to a lower share of matched pairs.) I have no reason to believe the sample of contracts provided were biased in any material way with regards to their terms relative to the true contract population.

640. I exclude two contracts from non-Zuffa promoters, one from Invicta and one from EliteXC, that Zuffa included in the document production.

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TABLE A1: CONTRACT CLAUSE PRESENCE

	Count	Percent
Count of Valid PARs	2,136	100%
Has Term in Months	2,134	100%
Has Term in Bouts	2,136	100%
Has Promotion Clause	2,136	100%
Has Exclusion Clause	2,136	100%
Has Ancillary Identity Clause	2,135	100%
Has Right to Match (RTM) Period	2,136	100%
Has Tolling Injury Clause	2,136	100%
Has Tolling Retirement Clause	2,132	100%
Has Term Start from First Bout	2,046	96%
Has Champions Clause	2,008	94%
Has Exclusive Negotiation Period	1,420	66%
Has Option Period	227	11%

Source: Zuffa's Contracts and Zuffa's Compensation Data

4. Zuffa's Event Profit and Loss Data

299. Zuffa provided two event-level profit-and-loss documents from which I gather event-specific revenues, costs, and compensation paid to Fighters. ZFL-2764797 details the event-level revenues and costs for all numbered (Pay-Per-View) UFC event from 2006 to 2016. ZFL-2764798 details the same revenues and costs for all events from 2010 to 2016. This second document includes Strikeforce, WEC, and non-PPV events (such as the shows on FOX, FX, and FUEL). This means that there is a data gap from 2006 to 2010 of non-PPV Zuffa events. To address this gap, I supplement this data with event-specific profit and loss documents produced in discovery.⁶⁴¹ Each of these profit-and-loss statements reports the total direct and indirect costs and revenues generated from the event. The revenues are sorted into various categories, broadly classified as Ticket Sales or Site Fees; PPV, Broadcast Sales, and Fees (including "Web Buys" and "Other"); event-specific Merchandise; and event-specific Sponsorships.

5. Pre-Acquisition Strikeforce Data

300. Within the discovery documents, I identified a number of files that contained data on Strikeforce's operations before its acquisition by Zuffa. These assorted datasets, once cleaned and combined, provide a partially complete picture of Strikeforce's event revenues and Fighter compensation before its acquisition. These documents are SJS00084771, ZFL-2458186, and ZFL-1472338. These sources add complete 400 Fighter-event level observations to the regression dataset. I omit "Young Guns" Strikeforce events from my analysis, as these were amateur events with purses less than \$1,000.

641. EG: ZUF-00031995, ZUF-00034210, ZUF-00106849, ZUF-00106856, and ZUF-00106854.

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6. FightMetric Fighter Performance Data

301. To control for a Fighter's characteristics at the time of a fight, I procured detailed statistics on a Fighter's bout performance from FightMetric. This sports statistics firm, the "official statistics provider of the UFC,"⁶⁴² generates Fighter-bout level information such as the number of strikes attempted or landed, where they hit and the degree of power, the time spent in the various MMA positions (stalking, clinch, ground control), and other relevant metrics. These data are matched onto the bout compensation data by Fighter name and event.

302. The FightMetric data contains fight data for a select number of MMA firms. These include Affliction, Bellator, EliteXC, Pride Fighting Championships, Strikeforce, World Extreme Cagefighting, and the UFC. FightMetric founder and director Rami Genauer explained over email FightMetric's selection criteria for promoters:

It was basically an attempt to cover the...most prominent organizations in the world. That was UFC and PRIDE, then WEC, then Strikeforce. In recent years, it's become whoever the market is willing to pay for. That's meant covering Bellator at times, but not currently. There are also instances in the database of following a fighter's career, regardless of organization. That was more important in the early days of the company when the stars were what mattered. Now it's the UFC brand that matters the most.⁶⁴³

7. FightMatrix Data

303. FightMatrix is an independent MMA ranking website that uses "a computerized rating system that attempts to capture un-biased "popular thought" and combine it with prediction-based analysis."⁶⁴⁴ Zuffa personnel relied on FightMatrix statistics during depositions.⁶⁴⁵ I pulled FightMatrix's historical rankings for all time periods and divisions, assembling a database showing all of the site's rankings in three-month intervals since 1990, ending in January 2017. FightMatrix tracks rankings by weight class, with different maximum ranks tracked. For example, the Men's Heavyweight division tracks Fighters up to the 250th best Fighter, whereas the Men's Welterweight division tracks Fighters up to the 650th best Fighter.⁶⁴⁶

8. Sherdog Data

304. Sherdog.com is a major MMA news and fan site, cited by industry analysts as "the most popular source of MMA news and information."⁶⁴⁷ In addition to its news services, Sherdog

642. See <http://www.fightmetric.com/company>. Note that UFC displays the FightMetric statistics on their website, and a branded "Statistics Provided by FightMetric" logo appears on pages such as <http://www.ufc.com/fighter/Ronda-Rousey>.

643. E-mail from Remi Genauer, Director, FightMetric, to Augustus Urschel, Analyst, Economists Incorporated (November 19, 2016, 19:48 ET).

644. See <http://www.fightmatrix.com/faq/>

645. Deposition of Javier Vasquez, Feb. 14, 2017 at 67, Exhibits 42-44.

646. See <http://www.fightmatrix.com/historical-mma-rankings/generated-historical-rankings/?Issue=109&Division=4> and <http://www.fightmatrix.com/historical-mma-rankings/generated-historical-rankings/?Issue=109&Division=1>

647. ZFL-2463304 at 14.

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maintains a nearly complete record of every MMA fight from around the world, from UFC mega events in Las Vegas to eight-man untelevised garage fights in Bosnia and Herzegovina.⁶⁴⁸ These records give the dates and locations of the fights, who fought in them, and the outcome of the individual bouts. I obtained the entire catalog of fights and events from Sherdog's public website and assembled a dataset of every MMA fight from around the world. The dataset contains 280,471 worldwide bouts of two Fighters from 36,864 unique Live MMA Events spanning from December 1991 to June 2017.

305. In addition to event and bout data, the website assigns a unique Fighter ID to each MMA combatant in the known MMA universe. For example, the number "2383" in the URL www.sherdog.com/fighter/Nate-Quarry-2383 corresponds to Nate Quarry and no other Fighter, which can be tested by typing in <http://www.sherdog.com/fighter/2383>. Because names can vary across different datasets (and, in the case of some Zuffa data, within a dataset), I use this unique Fighter ID to link Fighters across the various datasets described here.

B. Foreclosure Share Methodology

306. Zuffa's foreclosure share of the market is defined as the percentage of foreclosed Zuffa Fighters over the total population pool of the Relevant Input Market in a given month at time t , illustrated below. I calculate one measure of foreclosure under which all Fighters are considered foreclosed; in the alternative, I classify a Fighter as foreclosed only if the duration of exclusivity for their contract is 30 months or more. The foreclosure statistic can be written:

$$\left(\frac{\text{Foreclosed Zuffa Fighter}}{\text{Relevant Input Market Fighter Pool}} \right)_t$$

307. Due to missing contracts for some Zuffa Fighters, I construct this statistic by multiplying Zuffa's internal foreclosure share by Zuffa's market share of the Relevant Input Market Fighter Pool at time t . For example, Zuffa may have 150 Fighters in a pool of 200 total Fighters in the Relevant Input Market at time t , but contract data is only available for 120 of those 150 Zuffa Fighters. In this case, I would take the internal foreclosure share of the Zuffa Fighters for which we have contract data. If 96 of those 120 Fighters were foreclosed, Zuffa would have an internal foreclosure share of 80 percent. I would then multiply that 80 percent by Zuffa's market share at time t , in this case 75 percent (equal to 150 Zuffa Fighters divided by 200 total Fighters in the Relevant Input Market Fighter Pool) for a total foreclosure share of 60 percent.

308. The Relevant Input Market Fighter Pool consists of all Fighters in the Relevant Input Market at a Live MMA Event occurring at time t . I consider a Fighter to be in the Relevant Input Market Fighter Pool if he or she participated in a Live MMA Event within nine or twelve months before or after the Live MMA Event in question. This allows me to capture the pool of Fighters that were active around the time of a Live MMA Event, and thus potentially could have participated in it (even if they actually participated in some other Live MMA Event within the window). I consider a nine-month window as my baseline specification. By definition, Fighters not

648. See <http://www.sherdog.com/events> and <http://www.sherdog.com/organizations/Mix-Fight-Night-Bosnia-and-Herzegovina-11979>

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fighting in events during this window were inactive (did not fight in any Live MMA Event) for a period of 18 months surrounding the event in question. (My analysis of data from Sherdog reveals that the median career length for an MMA Fighter is brief—approximately five bouts, spread over just 41 months, which means that the typical length of time between bouts for a Fighter is about 8 months).

309. In some specifications, Fighters are weighted by the average gate and PPV revenues per Fighter for their respective promoters. Using the MMA news source <http://mmapayout.com>, I construct a database of 254 Live MMA Events and their total revenues.⁶⁴⁹ This includes event revenues for the promoters Affliction, Bellator, EliteXC, Pride, Strikeforce, UFC, WEC, and WSOF. I match these event revenues into the Sherdog data of all of the Fighter bouts that took place in that event. I then take the average revenue generated by each Fighter by dividing the total revenue by the number of Fighters. One average is calculated for Zuffa, and another for non-Zuffa promoters. Zuffa Fighters are then weighted by Zuffa's average revenue per Fighter, while non-Zuffa Fighters receive the average revenue per Fighter for non-Zuffa promoters. This approach is conservative because revenue data are available only for (relatively) large non-Zuffa MMA promotions such as Bellator and Strikeforce, so that Fighters from smaller promotions (which lack such data) receive the same weight as if they were affiliated with a larger promotion. In the case of ONE Championship, I conservatively assigned Fighters a weight equal to 25 percent of Zuffa Fighters' weight, in light of evidence that ONE's valuation was reportedly "approaching" a valuation of \$1B at approximately the same point in time that Zuffa sold for \$4B.⁶⁵⁰

C. Bout Class Regression Dataset Methodology

310. Given the various datasets described above, I create a combined regression dataset at the Fighter-event observation level. Each observation is a Zuffa (or Strikeforce pre-acquisition) Fighter in a given event matchup. Each observation contains the Fighter's name, their opponent, the event and its details, the Fighter's compensation and bonuses (from the Compensation Data), the events revenues and costs (from Zuffa's Event Profit and Loss Data), the Fighter's performance in that event (from the FightMetric data), the market foreclosure shares in that month (see section B above), the PAR agreement terms a Fighter was subject to at the time of the event (from the Contract Data). Combined, these datasets provide the independent and dependent variables necessary to estimate the regression.

311. With the exception of the contract, FightMatrix, and foreclosure share data, all of these datasets were merged in by Fighter IDs, a generated event ID, and the event date. Because the PAR agreements span multiple fights over time, I generate a timeframe over which each PAR agreement is active. This is the signing date plus the combined effective term. Because this is a theoretical date range, in the case of any overlapping agreements, I take the most recently signed

649. I use <http://mmapayout.com/blue-book/pay-per-view/> for PPV revenues and <http://mmapayout.com/blue-book/live-gate-attendance/> for gate revenues. Note: Although Strikeforce and Bellator have both produced internal financial data, I used publicly available data to construct Fighter weights to ensure event-specific comparability across promoters.

650. James Goyer, "ONE Championship receives multimillion dollar investment from Singapore fund," MMA Mania (July 14, 2016) ("[T]he company is on course for a billion-dollar valuation...The UFC was sold for \$4 billion to a group led by WME-IMG and ONE Championship is on course for an IPO in the next 12 to 18 months.").

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contract. The foreclosure share data and FightMatrix ranking data were merged in on matching months.

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APPENDIX 3: MATERIALS RELIED UPON

Deposition of Denitza Batchvarova (January 25, 2017)

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